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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,862	05/12/2006	Petrus A Van Nijnatten	1328-26	3794
23117 7590 07/22/2010 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203				
EXAMINER				
GUGLIOTTA, NICOLE T				
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1783				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/563,862

Applicant(s)

VAN NIJNATTEN, PETRUS A

Examiner

NICOLE T. GUGLIOTTA

Art Unit

1783

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3 - 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3 - 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/C)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date: _____

DETAILED ACTION

Examiner's Note

Examiner acknowledges the declaration submitted by the Applicant.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1 - 6, 8 - 12, 18 - 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson (U.S. Patent No. 6,125,598), in view of Buhay et al. (US 2004/0106017 A1).

In regard to claims 1, 18 & 20, Nelson discloses a glass laminate utilized for vehicle windows (Col. 3, Line 21) comprising alternating layers of silicon dioxide and fluorine doped in tin oxide (Col. 5, Lines 24 - 46).

Nelson et al. disclose each of the coatings have a thickness of 700 – 1500 Angstroms (70 – 150 nm). Nelson et al. do not teach a non-conductive film with a thickness of 500 to 1500 nm.

Buhay et al., however, teach a laminate for reducing heat build-up in the interior of a vehicle by providing a laminated windshield having two glass plies with an infrared (IR) or ultraviolet (UV) attenuating solar control coating between the plies (¶ [0001]).

This solar control coating stack comprises a protective coating (non-conductive coating) (¶ [0010]). Increasing the thickness of the protective layer (non-conductive layer) increases the emissivity value, which improves the heating and cooling characteristics of the plies (¶ [0034]). Buhay et al. disclose their protective coating to specifically be in the range of 500 Angstroms to 50,000 Angstroms (50 nm to 5000 nm) (¶ [0036]). In addition, Buhay et al. disclose the solar energy reflectance of the coating (light radiation emitted by the surface) is electromagnetic energy in the range of 700 nm to 2100 nm (¶ [0061]). For claims 3 - 5, discussed below, the total thickness of the coating combination of Nelson and Buhay et al. would be approximately 1150 nm. Therefore the total thickness of the coating, 1150 nm, is less than the light radiation of 2100 nm emitted (reflected) by the surface.

It would have been obvious to one of ordinary skill in the art at the time of the invention to increase the thickness of the non-conductive layer to a range of 50 – 5,000 nm in order to increase the emissivity, and therefore, decrease the heat build-up in the interior of a vehicle.

In regard to claims 3 – 5, Nelson discloses their conductive layer gave a thickness range of 700 – 1500 Angstroms (70 – 150 nm) (Col. 4, Lines 63 – 67). Buhay et al. disclose a protective coating have a thickness of 50 nm to 5000 nm (¶ [0036]). Therefore, a laminate structure of 2 non-conductive coatings, each with a thickness of 500 nm, and one conductive coating of at most 150 nm in thickness would have a total thickness of 1150 nm (1.15 micrometers).

In regard to claim 6, 8, and 9, Nelson disclose an electrically conductive layer of fluorine doped tin oxide (Col. 5, Line 44) and Buhay et al. disclose a functional (conductive) layer of a metallic nitride (§ [0031]) and/or a reflective metal such as gold, copper, or silver, and may further comprise a primer film, such as titanium (§ [0032]).

In regard to claim 10, Nelson discloses a thin film stack of transparent thin film coatings (Col. 3, Lines 6 – 8).

In regard to claims 11 & 12, Nelson discloses the non-conductive layer is silicon dioxide (Col. 4, Line 23). Buhay et al. also disclose their protective layer (non-conductive) can be silicon oxide (§ [0037]).

In regard to claim 19, Nelson discloses the first layer may be a titanium dioxide layer, which is a non-conductive material.

2. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson and Buhay et al., as in claim 1, and further in view of Woodward et al. (US 2001/0021540 A1).

Nelson and Buhay et al. are silent in regard to the presence of chrome, nickel or rhodium in the conductive layer.

Woodward et al., however, disclose chrome and nickel are traditionally known for reducing glare for solar control coatings applied to windows of vehicles or buildings (§ [0007]). Solar control coatings provide solar screening to the interior of vehicles, homes or buildings (§ [0038]). Woodward et al. also teach chromium and/or nickel also make good primers, which is applied to the conductive layer of titanium nitride to improve adherence between the titanium nitride and the adhesive layer or substrate (§ [0035]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the limitation of nickel or chrome in the coating taught by the combination of Nelson and Buhay et al. because Woodward et al. suggest the presence of nickel and/or chrome reduces glare and improves adherence between the conductive layer and the adjacent layer (i.e. substrate or adhesive).

3. Claims 13 & 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson and Buhay et al., as in claim 1, and further in view of Wakelyn (U.S. Patent No. 3,395,053).

The combination of Nelson and Buhay et al. teach an emission enhancing coating which prevents heat build-up in the interior of vehicles. Nelson and Buhay et al. are silent in regard to the application of their coating to a metal foil substrate.

Wakelyn teaches the application of thermal control coatings with high emission properties to aluminum foil surfaces with low emissivity surfaces. These coatings applied to the aluminum foil exteriors of space vehicles (i.e. satellite structures) control the temperature needed for minimum operations (Col. 2, Lines 1 – 26).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the emission enhancing coating disclosed by the combination of Nelson and Buhay et al. to the aluminum foil surface of a satellite or other space vehicle in order to regulate the temperature of the vehicle.

4. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson and Buhay et al., as in claim 1, and further in view of Rancourt et al. (U.S. Patent No. 4,735,488).

The combination of Nelson and Buhay et al. teach an emission enhancing coating which prevents heat build-up in the interior of vehicles. Nelson and Buhay et al. are silent in regard to the application of their coating to a solar cell substrate.

Rancourt et al. disclose the desire for a high emission coating applied to solar cells to overcome overheating problems (Col. 1, Lines 10 – 15).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the emission coating disclosed by the combination of Nelson and Buhay et al. to solar cells in order to overcome the problems of solar cells which may experience overheating, as disclosed by Rancourt et al.

Response to Arguments

5. Applicant argues, "Reflection and emission of radiation by an optical stack is very strongly dependent on the thickness of the layers. The thicknesses of the individual layers of the optical stack of Nelson have been carefully designed so as to provide the

required interference patterns to reflect the desired radiation. Changing the thickness of one specific layer in the optical stack would lead to different interference patterns which cause the optical stack of Nelson et al. to be unsuitable for the purpose described therein, which is anti-reflection by reduction of reflected visible light (Nelson, column 2, lines 1 – 6).

6. “Adjusting the thickness of one specific layer in the stack described by Nelson is expected to have strong and dramatic impact on the performance properties of the entire stack. The skilled person wishing to maintain the favorable anti-reflection properties taught by Nelson would therefore not be motivated to drastically modify (from 150 nm to 500 nm corresponds to an increase of 333 % !!) the thickness of individual layers in the three layer stack of Nelson.

7. This unwanted outcome is confirmed in the declaration which modeled the absorption of two coating stacks having multiple conductive and non-conductive layers, in which the thickness of the non-conductive layers were varied. The modeled results show that the absorbance properties strongly differ” (Remarks, Pgs 5 – 6).

EXAMINER'S RESPONSE: Applicant's arguments have been fully considered but they are not persuasive. First, contrary to Applicant's argument, the Examiner notes Nelson does not teach against the adjustment of thickness in any of the layers. Applicant has provided no evidence to suggest that increasing the emissivity of the coating by increasing the thickness of the conductive layers within the coating would destroy the anti-reflection properties desired by Nelson et al.

Second, the Examiner directs Applicant to U.S. Patent Nos. 4,783,373 and 4,850,660. Both of these references support the Examiner's argument for a coating that is both low in reflectivity (anti-reflective) and high in emissivity. Therefore, Buhay's teaching for forming a coating with high emissivity with thicker non-conductive layers would not be "unsuitable for the purpose" of an anti-reflective coating described by Nelson et al.

Third, although the Applicant provides evidence showing an increase in absorptivity with an increase in thickness of the non-conductance layer, Applicant fails to provide evidence showing a change in emissivity or anti-reflection, as a result of increasing the thickness of the non-conductive layer, which differs from the result predicted by Buhay et al. when applied to the layers taught by Nelson et al or demonstrate a mathematical relationship between the absorptivity data of their declaration and the supposed changes in emissivity and/or anti-reflection. In light of Applicant's missing data, Applicant has failed to provide sufficient evidence to support their arguments and as such the rejection is maintained.

8. Applicant argues, "In addition, applicant notes that Buhay et al. teach that the protective coating described therein can increase the emissivity of the (functional) layer directly underneath (Buhay et al., page 4, paragraph 34, penultimate sentence). Accordingly, at best the skilled person could be incited by Buhay et al. to adopt the non-conductive high emissivity protective coating of Buhay et al. as the non-conductive layer closest to the underlying surface of which the emissivity should be enhanced. Buhay et

al. do not provide motivation at all to the skilled person for applying the same layer thickness to the at least one other non-conductive layer in the coating of Nelson”
(Remarks, Pg 6).

EXAMINER'S RESPONSE: Applicant's arguments have been fully considered but they are not persuasive. As Applicant states above, Buhay et al. clearly teach the non-conductive coating increases the emissivity to the functional (conductive) layer beneath. Therefore, if each protective layer is to serve its purpose of increasing emissivity to each of the respective underlying functional layers, it would be reasonable to apply the thickness values taught by Buhay et al. to all the protective layers of the coating, not just the protective layers closest to the surface.

9. Applicant argues, “Counsel notes the examiner's finding must be based on substantial evidence, i.e. some concrete evidence of the record. See *In re Zurko*, 258 F.3d 1379, 59 USPQ2d 1693 (Fed. Cir. 2001)...Applicant provides herewith evidence that disproves the basis for the rejection and the examiner is obliged to accept this evidence as correct or provide substantial evidence (not argument) to the contrary”
(Remarks, Pg 6).

EXAMINER'S RESPONSE: Applicant's arguments have been fully considered but they are not persuasive. Examiner has provided the reference of Buhay et al., which teaches a correlation between non-conductive layer thickness and emissivity. Therefore, the Examiner has provided sufficient evidence in support of the rejection. As

discussed above, the Examiner finds Applicant's declaration insufficient and therefore the rejection is maintained.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **NICOLE T. GUGLIOTTA** whose telephone number is (571)270-1552. The examiner can normally be reached on M - F 8:30 a.m. - 6 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Sample can be reached on 571-272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David R. Sample/
Supervisory Patent Examiner, Art Unit 1783

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